Vestnik zoologii, **49**(1): 25–40, 2015
DOI 10.1515/vzoo-2015-0003

DE GRUYTER
OPEN

UDC 595.773.4

PYRGOTID FLIES ASSIGNED TO *APYRGOTA*. III. SPECIES OF *AFROPYRGOTA* GEN. N. AND *TYLOTRYPES* (DIPTERA, PYRGOTIDAE)

V. A. Korneyev

Schmalhausen Institute of Zoology, NAS of Ukraine,
vul. B. Khmelnytskogo, 15, Kyiv, 01601 Ukraine
E-mail: valery.korneyev@gmail.com

Pyrgotid Flies Assigned to *Apyrgota*. III. Species of *Afropyrgota* gen. n. and *Tylotrypes* (Diptera, Pyrgotidae). Korneyev, V. A. — *Afropyrgota* **gen. n**. (type species: *Apyrgota marshalli* Hendel, 1914) is established to include five species, *Afropyrgota copelandi* sp. n., *Afropyrgota mambilla* sp. n., *Afropyrgota marshalli* (Hendel, 1914) **comb. n.** (= *Apyrgota marshalli* Hendel, 1914), *Afropyrgota ota* sp. n. and *Afropyrgota uzungwa* sp. n., occurring in the tropical part of Africa. All species are described, illustrated and keyed. The new genus is similar to *Eupyrgota* Coquillett in having large size and wasp-like appearance, wing with spurious vein inserted at deep and sharp bend of R_{2+3}, and femora with two ventral rows of shortened and thickened setae, clearly differing by the lack of the finger-like projections on presternum and sclerotized hooks on oviscape. Four species formerly assigned to *Apyrgota* are shown to belong to *Tylotrypes* Bezzi: *T. breviventris* (Shi, 1996), **comb. n.**; *T. fura* (Shi, 1996), **comb. n.**; *T. jiangleensis* (Shi, 1994), **comb. n.**; *T. longa* (Shi, 1996), **comb. n.**; in addition, 2 species are transferred here from *Campylocera* Macquart and *Adapsilia* Waga: *T. fuscipes* (Wulp, 1885), **comb. n.** and *T. hispida* (Kim & Han, 2001), **comb. n.** A revised diagnosis of the genus *Tylotrypes* is given.

Key words: Diptera, Cyclorrhapha, Tephritoidea, Pyrgotidae, *Apyrgota, Afropyrgota, Tylotrypes,* Afrotropical Region, taxonomy, new taxa, synonymy.

Мухи-пирготиды, отнесённые к *Apyrgota*. III. Виды *Afropyrgota* gen. n. и *Tylotrypes* (Diptera, Pyrgotidae). Корнеев В. А. — Установлен род *Afropyrgota* **gen. n**. (типовой вид: *Apyrgota marshalli* Hendel, 1914) включающий пять видов, *Afropyrgota copelandi* sp. n., *Afropyrgota mambilla* sp. n., *Afropyrgota marshalli* (Hendel, 1914) **comb. n.** (= *Apyrgota marshalli* Hendel, 1914), *Afropyrgota ota* sp. n. и *Afropyrgota uzungwa* sp. n., встречающиеся в тропической части Африки. Приведены иллюстрированные описания и таблицы для определения видов. Новый род сходен с *Eupyrgota* Coquillett крупными размерами и осовидным телом, крыльями со шпорцевой жилкой, соединенной с R_{2+3} на глубоком изломе последней, а также бедрами с двумя рядами укороченных и утолщённых апиковентральных щетинок, отличаясь отсутствием сосцевидных выростов престернума и склеротизированных крючьев на основном членике яйцеклада. Кроме того, показано, что четыре вида, ранее относившиеся к *Apyrgota,* принадлежат к роду *Tylotrypes* Bezzi: *T. breviventris* (Shi, 1996), **comb. n.**; *T. fura* (Shi, 1996), **comb. n.**; *T. jiangleensis* (Shi, 1994), **comb. n.** и *T. longa* (Shi, 1996), **comb. n.**; в дополнение, два вида перемещены сюда из *Campylocera* Macquart и *Adapsilia* Waga: *T. fuscipes* (Wulp, 1885), **comb. n.** и *T. hispida* (Kim & Han, 2001), **comb. n.** Дан пересмотреный диагноз рода *Tylotrypes.*

Ключевые слова: Diptera, Cyclorrhapha, Tephritoidea, Pyrgotidae, *Apyrgota, Afropyrgota, Tylotrypes,* Афротропический регион, таксономия, новые таксоны, синонимия.

Introduction

While preparing the Pyrgotidae chapter for the Manual of Afrotropical Diptera (Korneyev, in press) extensive material deposited in several African, European and American collections was examined. Recently, Korneyev (2014 a, b) has transferred *Eupyrgota scioida* Hendel, 1908 (the type species of *Apyrgota*) and some other species assigned to *Apyrgota*, to *Eupyrgota* (s. str.) and *Eupyrgota* (subgenus *Taeniomastix* Enderlein, 1942).

In this paper I consider the species assigned to *Apyrgota* that do not belong to *Eupyrgota*. Here they are transferred to *Afropyrgota* gen. n. and *Tylotrypes* Bezzi, 1914.

This paper continues a series of revisions of the Old World Pyrgotidae genera (Korneyev, 2004, 2006 a, b, 2012; 2014 a, b), and I refer to those papers for some special morphological terms and abbreviations used below.

Material

The specimens examined in this study are deposited in the following collections: BMNH — the Natural History Museum, London, U. K.; CMNH — Carnegie Museum of Natural History, Pittsburgh, U. S. A.; CNC — Canadian National Collection, Ottawa; ISAZ — Institute of Zoology, Academia Sinica, Beijing, PR China; NMKE — National Museums of Kenya, Nairobi; RMNH — Naturalis, Leiden, the Netherlands, SIZK — Schmalhausen Institute of Zoology, Kyiv, Ukraine; USNM — National Museum of Natural History, Smithsonian Institution, Washington, D. C., U. S. A.; ZMUC — Zoological Museum, University of Copenhagen, Denmark.

The slash character (/) is used to separate lines, and the square brackets are for data absent in the literally cited labels.

Copyrights of the pictures of specimens deposited in the BMNH used in this paper belong to the Natural History Museum, London; copyrights of the fig. 10, *13* belong to L.-h. Wong.

Afropyrgota V. Korneyev, **gen. n.**

Type species: *Apyrgota marshalli* Hendel, 1914.

Diagnosis. Robust, wasp-like flies, very similar to *Eupyrgota* in having large subocular sclerite, bare scutellum, wing with spurious vein inserted to deep flexion of R_{2+3}, femora with two ventral rows of shortened and thickened setae on ventral side; mostly bare epandrium with elongated surstyli (as in *Eupyrgota* s. str.), oviscape with opening directed ventrally, paired rows of stiff setulae located anterolaterally of it, and short, T- or Y-shaped aculeus with strongly widened shoulders basally. They differ from *Eupyrgota* by the saddle-like prosternum without nipple or finger-like projections ventrally, and oviscape bearing no postero-laterally directed sclerotized hooks.

Description. Afrotropical Region (from Nigeria to Kenya and Tanzania).

Head. Frons and facialium broad, wider than eye, face with narrow, often very low carina; epistome low; subocular sclerite large; setae moderately short: oc, or and vte shorter than or at most as long as poc.

Thorax. Presternum saddle-like, without nipple-like ventral projections. Scutellum bare, with two pairs of setae.

Legs. Female fore and mid trochanters without thickened setulae; mid femur of female with or without femoral organ; setae of apicoventral rows moderately thickened and shortened.

Wing usually grey microtrichose, sometimes widely or almost entirely yellow tinged; subcostal vein straight, interrupted at fusion with costa. Pterostigma short. Vein R_{2+3} deeply and sharply bent at insertion of spurious vein, R_{4+5} bare. Costal vein reaching apex of M. Cell bcu with calypters with fine and short fringe, without spinulose cilia.

Abdomen. Sternites 1 and 2 entirely fused, forming long Y-shaped synsternite 1+2.

Male genitalia. Hypandrium with phallic guide. Epandrium almost entirely bare, with elongate lateral surstyli. Medial surstyli without prensisetae.

Female genitalia. Oviscape shorter than abdomen; its opening ventrally directed; apical fields of trichoid sensilla present: on lateroventral lobe (with thick setulae arranged in two rows — fig. 2, *2*: *lvl;* 4, *9;* 8, *4*) and dorsomedial lobe (fig. 2, *2*: *dl*); medioventral part at the apex widely desclerotized (fig. 2, *1;* 4, *8;* 8, *4*). Sclerotized hooks distal of them absent. Aculeus short, strongly widened in basal one-third and narrowly stiletto-like in apical portion (Y-like, see fig. 2, *3;* 4, *10;* 8, *5*). Ventral receptacle tubular, with spherical apical portion (fig. 2, *4*). One or two unequal smooth, poorly sclerotized, slightly curved spermathecae observed in few dissected specimens (related species of *Eupyrgota* usually have 2 larger and one smaller spermatheca, and I suppose this could be actual number of spermathecae in *Afropyrgota,* too, while the other could be lost during preparation).

Key to species of *Afropyrgota*

1. Orbit with opalescent or matt, microtrichose area at level of antenna base (fig. 7, *2*). Wing yellow with slightly darker apex (fig 7, *1, 5*). Thorax, femora and abdomen dark reddish brown, black setulose. Scutellum with 3 pairs of sctl (fig. 7, *4*). WL > 15 mm. Tanzania. .... *Afropyrgota uzungwa* sp. n.

— Orbit entirely shining. WL < 15 mm. Other characters variable. .... 2.

2. Mesonotum densely and long black setulose (fig. 3, *2*). Scutellum with 3 pairs of sctl (fig. 3, *5*). Proepisternal ridge with 8–10 long setae. Oviscape with 2 yellow hook-like, anteromesally directed lobes (fig. 3, *9*). Wing grey microtrichose with two darker marks. Female mid femur yellowish setulose, without femoral organ (fig. 3, *7*). Nigeria. .... *Afropyrgota mambilla* sp. n.

— Mesonotum moderately short reddish brown setulose. Scutellum with 1–2 pairs of sctl. Proepisternal ridge with 2–6 moderately short setae. Oviscape without such lobes. Wing and mid femur variable. ..... 3.

3. Scutellum with one pair of sctl (fig. 1, *5*). Frons widely black. Mid femur with very large cuneiform femoral organ almost entirely covering its apical half (fig. 1, *7*). Kenya. ..... *Afropyrgota copelandi* sp. n.

— Scutellum with two pairs of sctl. Frons and mid femur variable. .... 4.

4. Body entirely reddish yellow setulose, including pleura, abdomen and legs. Mid femur with cuneiform femoral organ narrower than femur (fig. 6, *6*). Nigeria, Kenya. .... *Afropyrgota ota* sp. n.

— Setae on pleura, abdomen and legs black or dark brown. Mid femur without femoral organ, densely brown setulose (fig. 4, *7*). Nigeria, Kenya, DR Congo (Zaïre). .... *Afropyrgota marshalli* (Hendel)

Afropyrgota copelandi V. Korneyev, **sp. n.** (fig. 1, 2)

Material. **Type.** Holotype ♀: **Kenya:** Rift Valley, Prov. Oloitokitok, 1853 m, 2.94456° S, 37.50714° E, Malaise trap, edge of indigenous forest, 11–25.11.2011 (R. Copeland) (NMKE). Paratypes 3 ♀: same label as in the holotype, 25.11–9.12.2011 (NMKE; SIZK).

Diagnosis. This species can be recognized from the combination of face without carina; parafacialium entirely shining yellow; frontal vitta black; ocellar setae short, but present; palp yellow, cigar-like, 4 times as long as wide, short setulose apically; yellow, sparsely black setulose scutum; scutellum with one pair of moderately long black apical setae; wing short, 6.0–6.4 mm long, uniformly grayish or hyaline, pale yellow along anterior margin; mid femur with very large cuneiform femoral organ almost entirely covering its apical half; abdominal sternites with moderately long black setae; oviscape entirely yellow, slightly shorter than syntergite 1+2 or combined length of tergites 3–6.

Description. Head (figs 1, *2, 3*) yellow, frontal vitta dark brown to black, except its posterior margin allied to vertex, 1.5–1.6 times as long as wide in posterior half; parafacial 1.5 times as wide as flagellomere 1; eye 2 times as high as wide, 1.5 times as wide as parafacial and 2.6 times as high as gena. Face concave, with faint medial suture, but without carina. Occiput entirely yellow. First flagellomere entirely reddish yellow, 2.7 times as long as wide, 1.5 times as long as pedicel and 2.3 times as long as scape. Arista entirely reddish yellow, 2-segmented. Scape 2 times as long as wide. Palp yellow, cigar-like, 4 times as long as wide, and as long as first flagellomere. Labellum very large, almost as long as eye height. Lateral vertical setae (vte) indistinguishable from postoculars or absent; medial vertical setae (vti) as long as pedicel and 1.8 times as long as postocellar, ocellar and orbital setae and 2–3 times as long as mesofrontal setulae (above lunule).

Thorax yellow to brownish yellow, without dark pattern. Prosternum saddle-like, short setulose. Postpronotal lobe with 4–6 setulae and one long seta; proepisternum with 7–9 setae. Scutum 1.1 times as long as wide, subshining yellow with faint brown areas, sparsely black setulose, with white microtrichia not obscuring underlying cuticle; 2 notopleural, 1 supra-alar, 1 intra-alar, 1 postalar, 2–3 postsutural dorsocentral, and 0 acrostichal setae. Scutellum yellow, whitish microtrichose, with one pair of apical setae 2 times as long as scutellum, but without setulae (fig. 1, *5*). Anepisternum yellow, with dark yellow or brownish anterior part; posterior part with 2–3 long setae and 7–9 irregular long setulae; anepimeron with 2 long setae and 5–6 irregular long setulae; katepisternum with 1–3 long setae and 5–7 thinner and slightly shorter setulae posterodorsally. Katatergite, anatergite and mediotergite brownish yellow, subshining, sparsely whitish microtrichose.

Wing (fig. 1, *4*) entirely hyaline or pale yellowish along anterior margin, covered with greyish microtrichia. Vein R_{4+5} bare. Wing length 11.5–12.5 mm. Lower calypter narrow, without cilia; upper calypter with short black fringe basally and 7–8 black cilia half as long as calypter width. Halter creamy white.

Legs (fig. 1, *6–8*) entirely yellow, black setulose and setose. Coxae moderately long and sparsely setose and setulose, unmodified. Fore femur (fig. 1, *6*) moderately narrow, long setose on posterior surface. Mid femur (fig. 1, *7*) on anterior surface setose in basal one-quarter and with very large cuneiform femoral organ almost entirely covering its apical half. Hind femur narrow, short setulose without long setae (except basiventral seta).

Abdomen (fig. 1, *9, 10*) narrow, cylindrical, almost twice as long as thorax, with syntergite 1+2 long, 1.1 times as long as tergites 3–6 combined. Synsternite 1+2 long Y-shaped (fig. 9, *1*). Sternites 3–6 subquadrate, with 2–3 black setae and 7–9 setulae at posterolateral corners.

Female genitalia. Oviscape entirely orange, short and sparsely black setulose, uncompressed, almost as high as wide and as long as tergites 3–6 combined, with apex short and slightly bent ventrally, bearing neither hooks, nor long setulae (fig. 2, *1*). Dorsal (dorso-medial) and latero-ventral lobes very short, with short yellow setae (fig. 2, *2*). Eversible

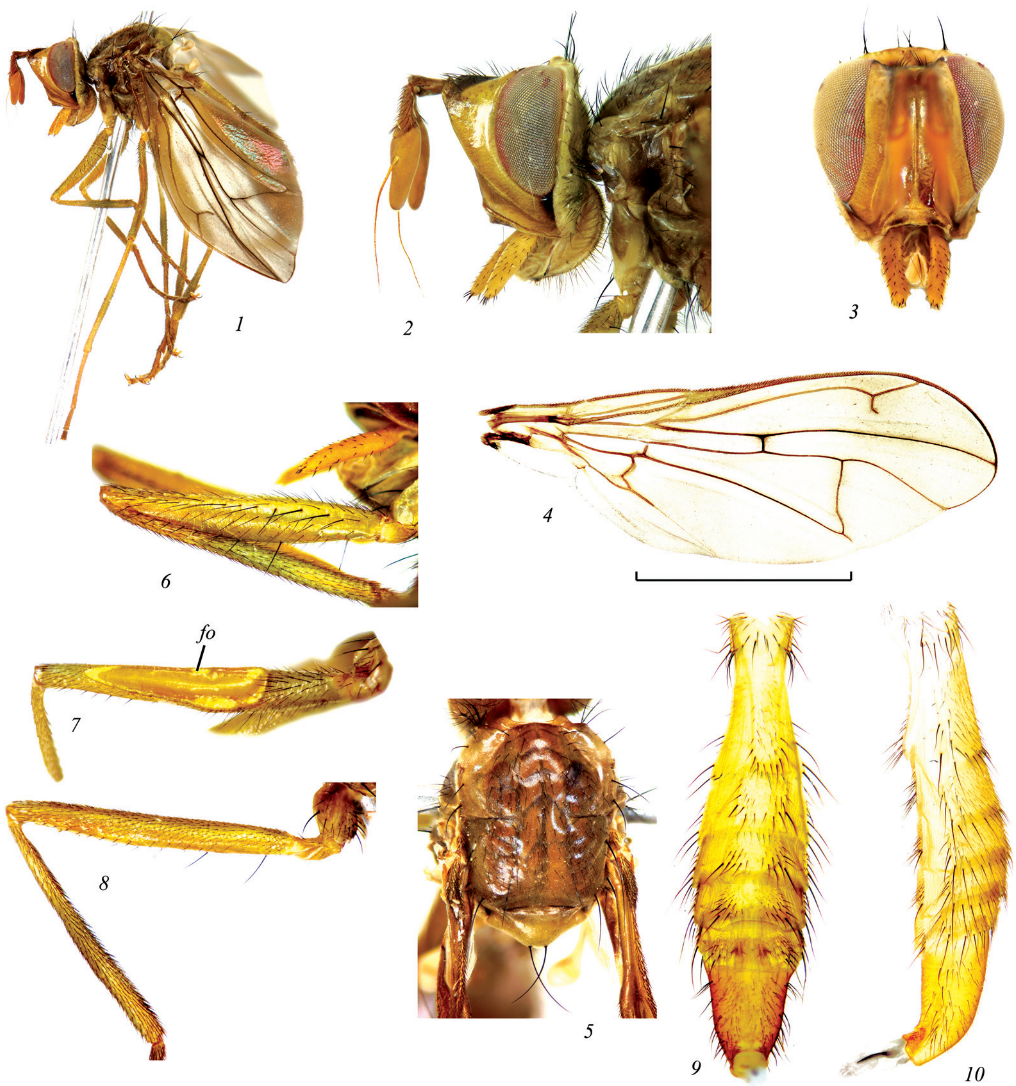


Fig. 1. *Afropyrgota copelandi* sp. n., ♀: *1* — holotype, lateral view; *2, 3* — head (*2* — left, *3* — anterior view); *4* — wing; *5* — mesonotum, dorsal view; *6* — fore leg, posterior; *7* — mid leg, anterior; *8* — hind leg, anterior; *9, 10* — abdomen (*9* — dorsal, *10* — lateral view). *fo* — femoral organ.

Рис. 1. *Afropyrgota copelandi* sp. n., ♀: *1* — голотип, вид сбоку; *2, 3* — голова (*2* — слева, *3* — спереди); *4* — крыло; *5* — среднеспинка, вид сверху; *6* — передняя нога, сзади; *7* — средняя нога, спереди; *8* — задняя нога, спереди; *9, 10* — брюшко (*9* — вид сверху, *10* — сбоку). *fo* — феморальный орган.

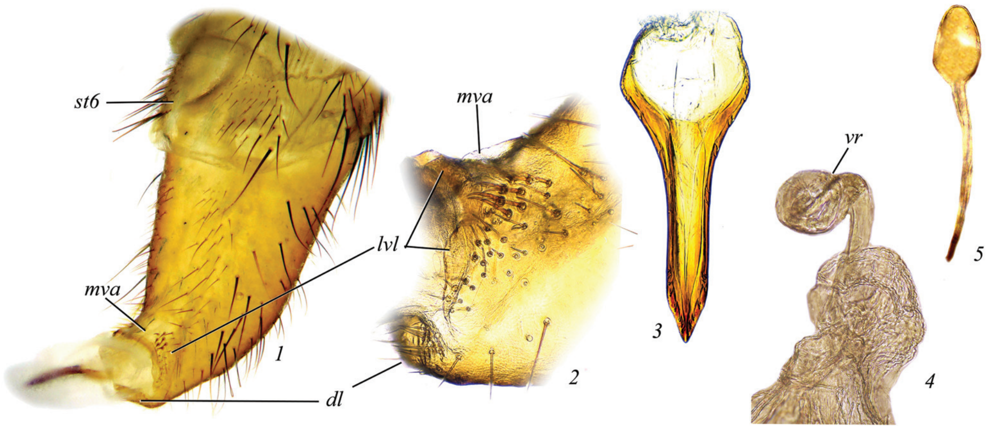


Fig. 2. *Afropyrgota copelandi* sp. n., ♀: *1* — sternite 6 and oviscape, ventrolateral view; *2* — same, lateroventral and dorsomedial lobes, left; *3* — aculeus; *4* — vagina and ventral receptacle; *5* — spermatheca. *dl* — dorsal lobe; *lvl* — lateroventral lobe; *mva* — medioventral desclerotized area; *st6* — sternite 6; *vr* — ventral receptacle.

Рис. 2. *Afropyrgota copelandi* sp. n., ♀: *1* — 6-й стернит и основной членик яйцеклада, снизу и сбоку; *2* — то же, латеровентральная и дорсомедиальная лопасти, слева; *3* — акулеус; *4* — вагина и вентральный семяприёмник; *5* — сперматека. *dl* — дорсальная лопасть; *lvl* — латеровентральная лопасть; *mva* — медиовентральная десклеротизированная область; *st6* — 6-й стернит; *vr* — вентральный семяприёмник.

membrane without sclerotized lobes or raspers. Aculeus as on fig. 2, *3*. Ventral receptacle (fig. 2, *4*) as in the other Pyrgotinae. Spermatheca oval (fig. 2, *5*).

Male unknown.

Afropyrgota mambilla V. Korneyev, **sp. n.** (fig. 3)

Material. **Type.** Holotype ♀ **Nigeria:** Mambilla Plateau, 05.04.1965, montane forest, 5000 ft (H. Roberts) (USNM).

Diagnosis. This species is similar to *Afropyrgota copelandi* sp. n., differing by frontal vitta at least partly brown or reddish-yellow; densely and black setulose scutum; proepisternal ridge with 8–10 long setae; scutellum with three or four moderately long black setae at each side; wing 9 mm long, grey microtrichose with two darker marks; mid femur without femoral organ, densely reddish-yellow setulose instead.

Description. Head (fig. 3, *2, 3*) yellow, frontal vitta dark brown to black, except its posterior one-fifth orange-yellow, c. 1.3 times as long as wide in posterior half; parafacial 1.8 times as wide as flagellomere 1, brown to brownish-yellow, shining, with short and fine setulae inserted into conspicuously edged alveolae; eye twice as high as wide, 1.7 times as wide as parafacial and 4.3 times as high as gena. Face shining brownish yellow, with low, but conspicuous medial carina. Occiput entirely yellow. First flagellomere entirely reddish yellow, 2.6 times as long as wide, 1.2 times as long as pedicel and 1.9 times as long as scape. Arista entirely reddish yellow, 2-segmented. Scape 1.5 times as long as wide. Palp yellow, cigar-like, 4.5 times as long as wide, and as long as first flagellomere. Labellum very large, almost as long as eye height. Lateral vertical setae (vte) indistinguishable from postoculars or absent; holotype with two pairs of medial vertical setae (vti), of them medial 1.3 times as long as lateral vti, as long as pedicel and postocellar, and ocellar setae, 1.2–1.5 times as long as long as orbital and 2–3 times as long as mesofrontal setulae (above lunule).

Thorax yellow to brownish yellow, without contrasting dark pattern. Postpronotal lobe with 12–15 setulae and one long seta; proepisternum with 18–20 setae and setulae. Scutum as long as wide, subshining yellow with faint brown areas, moderately densely covered with long black setulae. Scutellum yellow, sparsely whitish microtrichose, with three or four setae 1.2–1.4 times as long as scutellum; no setulae (fig. 3, *5*). Anepisternum yellow, with brownish posterior half bearing 25–30 long setulae in its presutural part and

one long seta and 10–12 irregular long setulae in its postsutural part; anepimeron with one long seta and 15–16 irregular long setulae 0.5–0.75 times as long as seta; katepisternum with one long seta and six to seven thinner and shorter setulae. Other sclerites brownish yellow, covered with short and sparse whitish microtrichia not covering underlying cuticle.

Wing (fig. 3, *1*) grey microtrichose with two darker marks posterior of stigma and in apical quarter. Wing length 15 mm. Lower calypter very narrow, without cilia; upper calypter with short black fringe basally; no visible thicker cilia.

Legs (fig. 3, *1; 6, 7*) entirely yellow, black setulose and setose. Coxae unmodified. Fore femur (fig. 3, *6*) moderately narrow, long setose on posterior surface. Mid femur (fig. 2, *7*) without femoral organ, densely reddish-yellow stulose instead. Hind femur narrow, short setulose 4–5 long subapical dorsal setae and long basiventral seta.

Abdomen narrow, cylindrical, as long as thorax, with syntergite 1+2 long, 1.5 times as long as tergites 3–6 combined.

Female terminalia not dissected. Oviscape (in situ) entirely brownish yellow, shining, sparsely black setulose, uncompressed, almost as long as preabdominal tergites 1–6 combined, with apex bearing 2 yellow hook-like, anteromesally directed lobes (fig. 3, *8, 9*). Eversible membrane not examined.

Male unknown.



Fig. 3. *Afropyrgota mambilla* sp. n., ♀: *1* — holotype, lateral view; *2–4* — head (*2* — left, *3* — anterior, *4* — dorsal view); *5* — mesonotum, dorsal view; *6* — fore leg, posterior; *7* — mid leg, anterior; *8* — oviscape, lateroventral; *9* — same, apex, ventral.

Рис. 3. *Afropyrgota mambilla* sp. n., ♀: *1* — голотип, вид сбоку; *2–4* — голова (*2* — вид сбоку, *3* — спереди, *4* — сверху); *5* — среднеспинка, вид сверху; *6* — передняя нога, вид сзади; *7* — средняя нога, спереди; *8* — основной членик яйцеклада, вид сбоку и снизу; *9* — то же, вершина, снизу.

Afropyrgota marshalli (Hendel, 1914) **comb. n.** (fig. 4, 5)

Apyrgota marshalli Hendel, 1914**:** 106; Vanschuytbroeck, 1963: 50; Steyskal, 1980: 557.

M a t e r i a l. **1. Type.** Holotype ♂ *Apyrgota marshalli*: **Malawi:** "Mt Mlanje [Mulanje, 16°01'00.4" S 35°07'43.6" E], Nyasaland, 22.XI.1912, N. A. Neave", "Pres. by Imp. Bur. Ent. Brit. Mus. 1922 — 254" "Apyrgo-

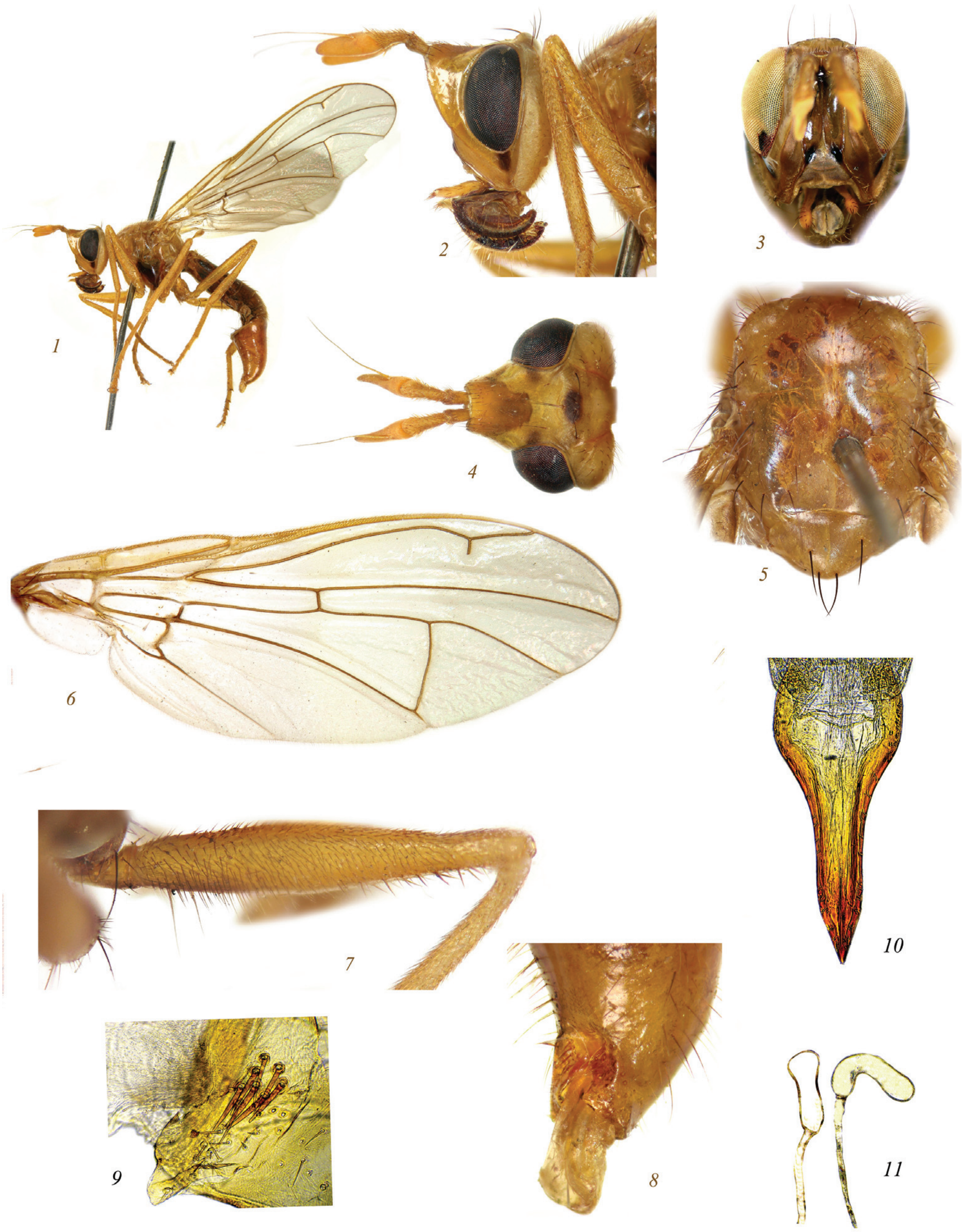


Fig. 4. *Afropyrgota marshalli*, ♀: *1* — lateral view; *2–4* — head (*2* — left, *3* — anterior, *4* — dorsal view); *5* — mesonotum, dorsal view; *6* — wing; *7* — mid femur, anterior view; *8* — oviscape, ventrolateral; *9* — same, lateroventral lobe; *10* — aculeus; *11* — spermathecae.

Fig. 4. *Afropyrgota marshalli*, ♀: *1* — вид сбоку; *2–4* — голова (*2* — вид слева, *3* — спереди, *4* — сверху); *5* — среднеспинка, вид сверху; *6* — крыло; *7* — среднее бедро, вид спереди; *8* — основной членик яйцеклада, вид снизу и сбоку; *9* — то же, латеровентральная лопасть; *10* — акулеус; *11* — сперматеки.

ta / marshalli, H / det. Hendel", "Holo / type [red bordered circle]", "Holotype Apyrgota marshalli Hendel verified J. E. Chainey 2002", "BMNH # 252173". Directly pinned (BMNH). 2. Non-type. **Kenya:** Coast Prov., Taita Hills, Chawia Forest, 3.47908° S, 38.34162° E, 1614 m, Malaise trap next to small forest pond, 13–27.11.2011, 1 ♀ (R. Copeland) (NMKE); **DR Congo** (= Zaïre): 150–200 miles W of Kambowe, 3,500–4,500 ft, 08.10.1907, 1 ♀ (dissected) (collector not given) (BMNH: Neave coll. 230); **Tanzania:** Matengo Highlands, WSW of Songea, Ugano, "15", 1700 m, 20–30.11.1935, 1 ♀ [H. Zerny] (NHMW).

Diagnosis. This species can be recognized by the combination of wing uniformly pale gray, two pairs of scutellar setae, frontal vitta yellow, and female mid femur without femoral organ, brown setulose anteriorly.

Description. Head (fig. 4, *2–4*) yellow, frontal vitta yellow, usually with brownish spots on vertical plates, c. 1.2–1.4 times as long as wide in posterior half; parafacial twice as wide as flagellomere 1; eye 1.8–2 times as high as wide, 1.1–1.3 times as wide as parafacial and 2.8 times as high as gena. Face entirely yellow or with pair of brown spots ventrally; concave, with faint medial suture, but without carina. Gena usually with brown spot on subocular sclerite. Occiput entirely yellow. First flagellomere entirely reddish yellow, 2.8 times as long as wide, 1.4 times as long as pedicel and 2.3 times as long as scape. Arista entirely reddish yellow,



Fig. 5. *Afropyrgota marshalli*, holotype ♂: *1* — lateral view; *2* — labels, *3* — wing; *4* — mesonotum, dorsal view; *5* — epandrium, right view.

Рис. 5. *Afropyrgota marshalli*, голотип ♂: *1* — вид сбоку; *2* — этикетки, *3* — крыло; *4* — среднеспинка, вид сверху; *5* — эпандрий, вид справа.

2-segmented. Scape 1.5 times as long as wide. Palp yellow, cigar-like, 4–4.5 times as long as wide, and as long as first flagellomere. Labellum very large, almost as long as eye height. Lateral vertical setae (vte) indistinguishable from postoculars or absent; medial vertical setae (vti) slightly shorter than pedicel and 0.9–1.1 times as long as postocellar, ocellar and orbital setae and 1.5–2 times as long as mesofrontal setulae (above lunule).

Thorax yellow to brownish yellow, without dark pattern. Prosternum saddle-like, short setulose. Postpronotal lobe with 8–10 setulae and one long seta; proepisternum with 3–6 setae. Scutum 1.1 times as long as wide, subshining yellow with faint brown areas, sparsely reddish-brown to brownish-yellow setulose, with white microtrichia not obscuring underlying cuticle; 2 notopleural, 1 supra-alar, 1 intra-alar, 1 postalar, 2–3 postsutural dorsocentral, and 0 acrostichal setae. Scutellum yellow, whitish microtrichose, with two pairs of setae as long as scutellum, but without setulae (fig. 4, *5*). Anepisternum yellow, with dark yellow or brownish anterior part; posterior part with 2–3 long setae and 7–9 irregular long setulae; anepimeron with 2 long setae and 4–6 irregular long setae; katepisternum with 1–2 long setae and 2–3 thinner and slightly shorter setulae posterodorsally. Katatergite, anatergite and mediotergite brownish yellow, subshining, sparsely whitish microtrichose.

Wing (fig. 4, *6;* 5, *3*) entirely hyaline or pale yellowish along anterior margin, covered with greyish microtrichia. Vein R_{4+5} bare. Wing length 13.0–14.5 mm. Lower calypter narrow, without cilia; upper calypter with short black fringe basally and 7–8 black cilia half as long as calypter width. Halter creamy white.

Legs (fig. 4, *1;* 5, *7*) entirely yellow, black setulose and setose. Coxae moderately long, sparsely setose and setulose, unmodified. Fore femur moderately narrow, with 3–4 long setae on posterior surface. Mid femur (fig. 4, *7*) without femoral organ, uniformly dark brown setulose on anterior surface. Hind femur narrow, short setulose without long setae (except basiventral seta).

Abdomen narrow, cylindrical, almost twice as long as thorax, with syntergite 1+2 long, 1.1 times as long as tergites 3–6 combined. Synsternite 1+2 long Y-shaped (fig. 9, *2*). Sternites 3–6 subquadrate, with 2–3 black setae and 7–9 setulae at posterolateral corners.

Female genitalia. Oviscape entirely orange, short and sparsely black setulose, uncompressed, almost as high as wide and as long as tergites 3–6 combined, with apex short and slightly bent ventrally, bearing neither hooks, nor long setulae (4, *8, 9*). Eversible membrane without sclerotized lobes or raspers. Aculeus moderately wide (fig. 4, *10*) Spermathecae sausage-like, poorly sclerotized (fig. 4, *11*).

Male as in fig. 5. Epandrium similar to that in *Eupyrgota* (fig. 5, *5*).

Afropyrgota ota V. Korneyev, **sp. n.** (fig. 6)

Material. **1. Type.** Holotype ♀: **Nigeria:** Oludu C. R. / SE State 27 Mar 1971 / Col. J. T. Medler (USNM). Paratype ♀: **Burundi**: Ruvubu National Park, 1382 m, 2.98144° S, 30.45531° E, Malaise trap, near Ruvubu River, 22.04–07.05.2010 (R. Copeland) (NMKE).

Diagnosis. This species is similar to *A. marshalli* in having two pairs of scutellar setae, and frontal vitta yellow, similar shape and length of oviscape, differing from it by having entirely reddish yellow setulose body, including pleura, abdomen and legs (pleura, abdomen and legs black setulose in *A. marshalli*) and mid femur with cuneiform femoral organ narrower than femur (entirely lacking in *A. marshalli*).

Description. Head (fig. 6, *2, 3*) yellow, frontal vitta yellow, c. 1.1 times as long as wide in posterior half; parafacial 1.73 times as wide as flagellomere 1; eye 2 times as high as wide, 1.3 times as wide as parafacial and 2.6 times as high as gena. Face concave, with low, but conspicuous medial carina, in holotype uniformly yellow, in paratype with 2 brown spots ventrally. Gena with dark brown vertical patch over subocular sclerite. Occiput entirely yellow. First flagellomere entirely orange yellow, 2.7–2.8 times as long as wide, 1.72 times as long as pedicel and 3 times as long as scape. Arista entirely reddish yellow, 2-segmented. Scape 2 times as long as wide. Palp yellow, cylindric, 4–4.5 times as long as

wide, and c. 0.8 times as long as first flagellomere. Labellum very large, but shorter than eye height. Lateral vertical setae (vte) distinctive, 0.5–0.6 times as long as medial vertical seta; the latter (vti) as long as pedicel and 1.6–1.8 times as long as postocellar, ocellar and orbital setae and 2.5 times as long as mesofrontal setulae (above lunule).

Thorax yellow to orange yellow, without dark pattern. Postpronotal lobe with 8–10 setulae and one long seta; proepisternum with 7–9 setae; prosternum saddle-like (fig. 6, *7*). Scutum 1.1–1.2 times as long as wide, subshining yellow with orange areas at place of attachment of muscles, sparsely yellow setulose, with white microtrichia not obscuring underlying cuticle; orange to brown setose, 2 notopleural, 1 supra-alar, 1 intra-alar, 1 postalar, 1–2 postsutural dorsocentral, and 0 acrostichal setae. Scutellum yellow, inconspicuously



Fig. 6. *Afropyrgota ota* sp. n., ♀: *1* — holotype, lateral view; *2–4* — head (*2* — left, *3* — anterior, *4* — dorsal view); *5* — wing; *6* — mid leg, anterior; *7* — prosternum, anteroventral; *8* — paratype abdomen, lateral view.

Рис. 6. *Afropyrgota ota* sp. n., ♀: *1* — голотип, вид сбоку; *2–4* — голова (*2* — вид слева, *3* — спереди, *4* — сверху); *5* — крыло паратипа; *6* — средняя нога, спереди; *7* — простернум, спереди и снизу; *8* — брюшко паратипа, вид сбоку.

whitish microtrichose, with one pair of apical setae 1.5 times as long as scutellum, but without setulae. Anepisternum yellow, in holotype uniformly yellow, in paratype with dark yellow or brownish anterior part; posterior part with 2–4 long setae and 10–12 irregular long setae; anepimeron with 2–3 long setae and 3–6 irregular long setae; katepisternum with 1–3 long setae and 9–15 thinner and slightly shorter setulae posterodorsally. Katatergite, anatergite and mediotergite brownish yellow, subshining, very sparsely whitish microtrichose.

Wing (fig. 6, *5*) pale yellowish along anterior margin and veins, covered with greyish microtrichia, with lighter areas between bm-cu and r-m and r-m and dm-cu; cell bm and alula mostly glossy, translucent, devoid of microtrichia. Vein R_{4+5} bare. Wing length 10.5–14.0 mm. Lower calypter very narrow, without cilia; upper calypter with yellow fringe basally and 3–4 yellow cilia half 0.4 times as long as calypter width. Halter creamy white, with brownish knob.

Legs entirely yellow, brown setulose and brownish yellow setose. Coxae moderately long and sparsely setose and setulose, unmodified. Fore femur moderately narrow, long setose on posterior surface. Mid femur (fig. 6, *7*) on anterior surface setose in basal one-quarter and with cuneiform femoral organ narrower than its width and much shorter than its half. Hind femur narrow, short setulose without long setae (except basiventral seta).

Abdomen (fig. 6, *8*) narrow, cylindrical, almost twice as long as thorax, with syntergite 1+2 elongate, 1.2 times as long as tergites 3–6 combined. Sternites as in *A. marshalli*. Oviscape as in *A. marshalli*, entirely orange, short and sparsely black setulose, uncompressed, almost as high as wide and as long as tergites 3–6 combined, with apex short and slightly bent ventrally, bearing very short dorsomedial and two lateroventral lobes, but neither hooks, nor long setulae. Eversible membrane and aculeus not dissected.

Male unknown.

Afropyrgota uzungwa V. Korneyev, **sp. n.** (fig. 7, 8)

Material. **1. Type.** Holotype ♀: **Tanzania:** Uzungwa Mts., Chita Forest Reserve, 1500 m, 10.11.1994 (M. Stoltze & G. Petersen) (ZMUC). Paratype: 1 ♀, labels as in holotype (dissected) (SIZK).

Diagnosis. This species can be recognized from the combination of its very large size (wing length > 15 mm), reddish brown body, yellow wing, and partly microtrichose parafacialium and mesonotal scutum; face with pair of black spots ventrally, without carina; frontal vitta orange, sparsely whitish microtrichose; ocellar setae present; palp reddish yellow, cigar-like, 3 times as long as wide, short setulose along most of its length; scutum reddish brown with brown, sparsely white microtrichose medial area, densely and moderately long black or brown setulose; scutellum with three or four long black setae on each side, almost as long as scutellum length; wing very long, 16.5–17.2 mm long, mostly yellow, brownish along veins; mid femur without femoral organ; abdominal sternites with long black setae; oviscape brown, slightly longer than syntergite 1+2, conspicuously compressed dorso-ventrally.

Description. Head (fig. 7, *2, 3*) brown to orange, frontal vitta brownish red or orange, matt, very sparsely whitish microtrichose at middle, with 20–25 moderately long black mesofrontal setulae in its anterior half and 1 pair of black proclinate orbital setae, c. 1.0–1.1 times as long as wide in posterior half; parafacial 1.7 times as wide as flagellomere 1, opalescent or sparsely whitish tomentose in its dorsal portion (at level of antenna base); eye 1.6 times as high as wide, 1.8 times as wide as parafacial and 2,75 times as high as gena. Face matt, brownish yellow, with two shining black spots lateroventrally, concave, with very low medial carina. Occiput entirely brown. Antennae brown, first flagellomere 2.5 times as long as wide, 1.2 times as long as pedicel and 2.5 times as long as scape. Arista entirely whitish yellow, 2-segmented. Scape 1.2–1.3 times as long as wide. Palp reddish brown, 3 times as long as wide, and as long as first flagellomere, moderately densely setulose over its medial and lateral sides in apical half. Labellum very large, almost as long as eye height. Ocellar seta present, almost half as long as flagellomere 1 and 0.6 times as long as medial vertical seta. Lateral vertical setae (vte) well developed, 1.3–1.5 times as long as postocular setulae; medial



Fig. 7. *Afropyrgota uzungwa* sp. n., ♀: *1* — holotype, lateral view; *2, 3* — head (*2* — left, *3* — anterior); *4* — mesonotum dorsal; *5* — wing; *6* — fore leg, posterior; *7* — mid leg, anterior; *8* — hind leg, anterior and abdomen, ventrolateral. Scale bar 5 mm.

Рис. 7. *Afropyrgota uzungwa* sp. n., ♀: *1* — голотип, вид сбоку; *2–4* — голова (*2* — вид слева, *3* — anterior); *4* — среднеспинка сверху; *5* — крыло; *6* — передняя нога, вид сзади; *7* — средняя нога, вид спереди; *8* — задняя нога, вид спереди и брюшко, вид снизу и сбоку. Масштабная линейка 5 мм.

vertical setae (vti) 0.75 times as long as pedicel and 1.4–1.6 times as long as postocellar, ocellar and orbital setae and 1.5 times as long as mesofrontal setulae (above lunule).

Thorax reddish brown. Prosternum saddle-like, short setulose. Postpronotal lobe with 10–15 long thinner black setulae and 2–3 long seta; proepisternum with 8–12 setae. Scutum 1.2 times as long as wide, reddish brown with darker brown areas lateral of dorsocentral setae, moderately long and densely black setulose, white pollinose, with microtrichia not obscuring underlying cuticle; 2 (–3) notopleural, 1 supra-alar, 1 intra-alar, 1 postalar, 2 postsutural dorsocentral, and 0 acrostichal setae. Scutellum reddish brown, whitish microtrichose, with 3–4 black

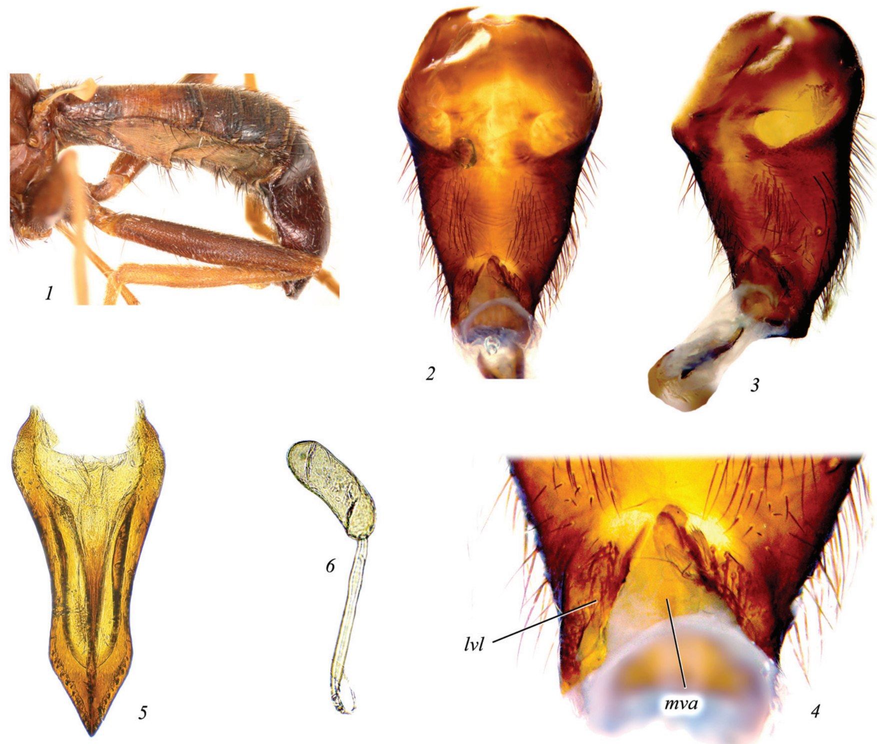


Fig. 8. *Afropyrgota uzungwa* sp. n., paratype ♀: *1* — abdomen left view; *2* — oviscape (macerated) ventral; *3* — same, ventrolateral; *4* — same, apex, enlarged, ventrally; *5* — aculeus; *6* — spermatheca. Abbreviations as on fig 2.

Рис. 8. *Afropyrgota uzungwa* sp. n., паратип ♀: *1* — брюшко, вид слева; *2* — основной членик яйцеклада (мацерированный) вид снизу; *3* — то же, вид снизу и сбоку; *4* — то же, вершина увеличено, вид снизу; *5* — акулеус; *6* — сперматека. Сокращения как на рис. 2.

setae at each side 0.7–0.9 times as long as scutellum, without setulae (fig. 7, *4*). Anepisternum reddish brown to yellow, densely black setulose; posterior part with 2–3 long setae and 25–30 setulae of various length; anepimeron with 3–4 long black setae and 4–5 slightly shorter setu-

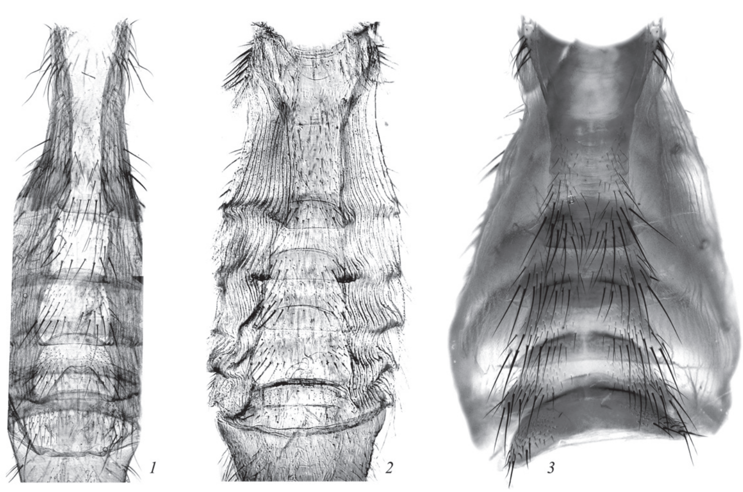


Fig. 9. *Afropyrgota*, ♀ abdominal sternites, macerated, ventral view: *1* — *A. copelandi* sp. n.; *2* — *A. marshalli*; *3* — *A. uzungwa* sp. n.

Рис. 9. *Afropyrgota*, ♀ брюшные стерниты ♀, мацерированные, вид снизу: *1* — *A. copelandi* sp. n.; *2* — *A. marshalli*; *3* — *A. uzungwa* sp. n.

lae; katepisternum with 1–2 long black setae and 12–17 setulae posterodorsally. Katatergite, anatergite and mediotergite reddish brown, subshining or matt, sparsely whitish microtrichose.

Wing (fig. 7, *5*) entirely yellow, brownish along veins, with narrow hyaline areas in basal cells. Wing length 16.5–17.2 mm. Lower calypter narrow, without cilia; upper calypter with moderately long (half as long as calypter width) brown or black fringe but without conspicuously thicker black cilia. Halter yellowish.

Legs (fig. 7, *6–8*) entirely reddish, black setulose and setose, except tarsi golden brown setulose. Coxae moderately long, sparsely setose and setulose, unmodified. Fore femur (fig. 6, *6*) basally sonewhat thickened, spindle-like, moderately long setose on posterior surface. Mid femur (fig. 7, *7*) on anterior surface densely black setulose, without femoral organ. Hind femur moderately narrow, short setulose without long setae (except basiventral seta) (fig. 7, *8*).

Abdomen moderately wide and robust, 1.5 times as long as thorax, with densely black setose and setulose tergites and sternites, with syntergite 1+2 long, 1.4–1.5 times as long as tergites 3–6 combined (fig. 8, *1*). Synsternite 1+2 short Y-shaped (fig. 9, *3*). Sternites 3–6 subquadrate, with 2–3 black setae and 7–9 setulae at posterolateral corners (fig. 9, *3*).

Female genitalia. Oviscape (fig. 8, *1–3*) black, densely black setulose, dorsoventrally compressed, as long as or slightly wider than long, and as long as tergites 3–6 combined, with apex bent ventrally, bearing no hooks, only setulae on lateroventral lobes (fig. 8, *4*), and medioventral desclerotized area (fig. 8, *4*) as in *A. copelandi* sp. n. Eversible membrane without sclerotized lobes or raspers. Oviscape (fig. 8, *5*) wide, robust. Spermathecae sausage-like, poorly sclerotized (fig. 8, *6*).

Male unknown.

Tylotrypes Bezzi, 1914 (fig. 10)

Type species: *Tylotrypes immsi* Bezzi, 1914.

D i a g n o s i s. Robust, densely setulose dark brown flies with darkened wings (fig, 10, *1, 2, 4, 13, 14*); head without subocular sclerite; face with (fig. 10, *5*) or without carina (fig. 10, *15*); wing with straight and entire vein Sc, straight R_{2+3}, and without a spurious vein, costa more or less thinned posterior of R_{4+5} apex; femora without ventral rows of shortened and thickened setae, usually densely setose; femoral organ in females usually lacking, except in *T. fuscipes* (Wulp); scutellum heavily setulose; synsternite 1+2 wide, with setulose posterior part; epandrium setulose dorsally, with moderately short surstyli (medial surstylus without prensisetae); hypandrium with two posterior lobes forming a phallic guide between surstyli (fig. 10, *10, phg*); oviscape with long medioventral sclerotized lobe, but without hook- or nail-like unpaired sclerotized process (fig. 10, *6, mvl*), often with calluses on ventral surface (fig. 10, *2, 4, 6, 14, opc*); aculeus with basal part thickened dorsoventrally, but neither Y- or T-shaped (fig. 10, *7, 8*); three sclerotized sausage-like spermathecae (fig. 10, *9*), one of them smaller and shorter.

Tylotrypes shares the absence of the subocular sclerite, and straight veins Sc with *Pyrgota* Wiedemann and *Tephritopyrgota* Hendel and apparently is related to them, differing by having very long medioventral lobe of the oviscape apex instead of a short hook and also by the shape of aculeus with its basal part thickened dorso-ventrally and triangular in profile (fig. 10, *7, 8*, a unique character state not occurring elsewhere, possibly a synapomorphy of *Tylotrypes*).

R e m a r k s. I have examined about two dozen specimens from Nepal, Thailand, Malaysia, Mainland China, Taiwan, and Indonesia (Java, Borneo), which represent six to eight species of the genus *Tylotrypes* similar or identical to species described by Shi (1994; 1996) from China (Yunnan) as *Apyrgota* species. As the type material is unavailable at this moment and illustrations and descriptions are incomplete or based on males alone, identification of that material with Chinese nominal species is pending until a forthcoming revision of *Tylotrypes*. Judging from the photographs of the type specimen of *Apyrgota longa*

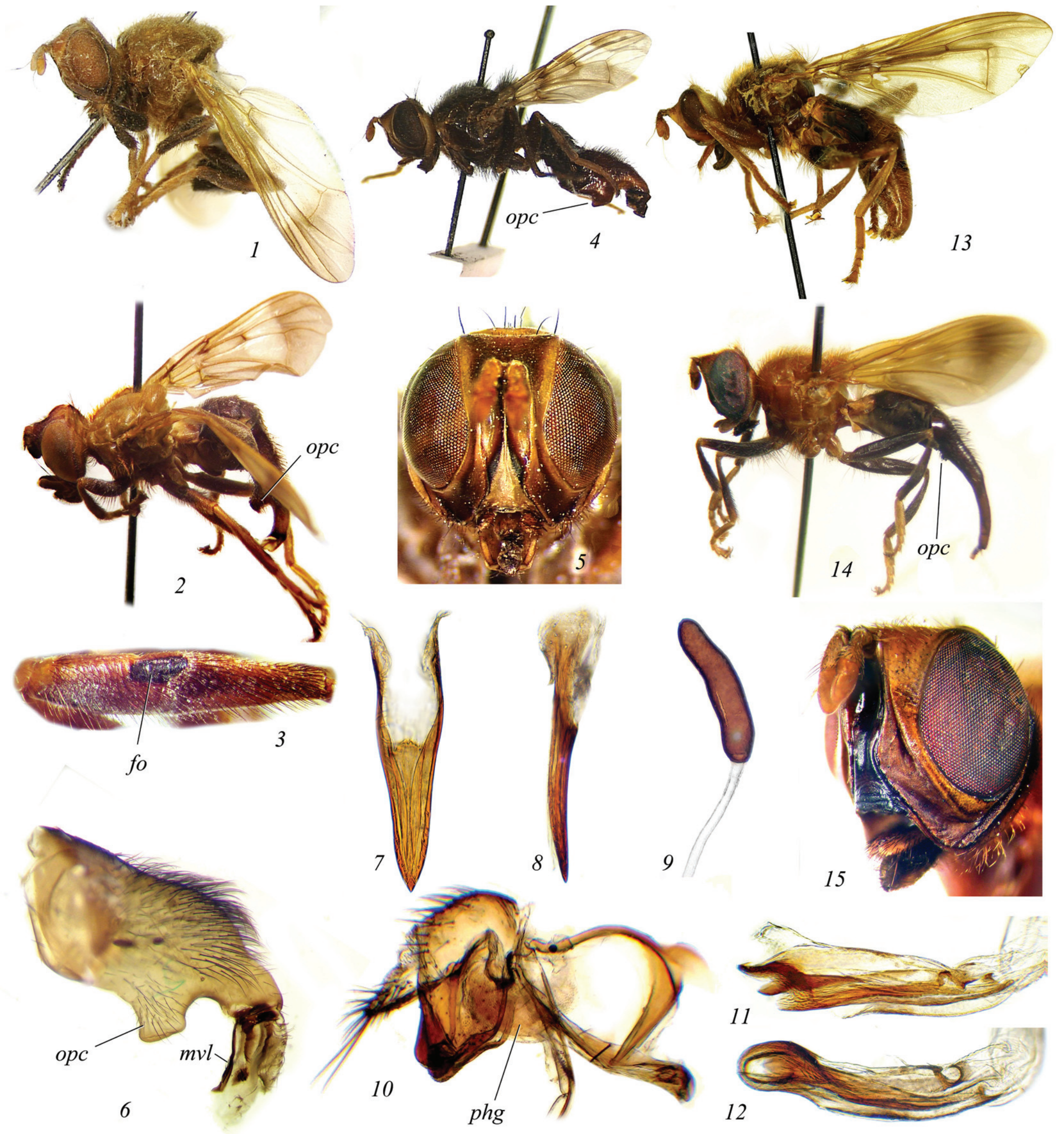


Fig. 10. *Tylotrypes*: *1–3* — *T. fuscipes* (Wulp) (*1* — holotype ♂, RMNH, habitus left; *2* — non-type ♀, Taiwan, CMNH, habitus left; *3* — same, mid femur, anterior); *4–12* — *T. immsi* Bezzi (*4* — holotype, ♀, India, BMNH, habitus left; *5* — same, face, anterior; *6* — non-type ♀, Nepal, CNC, macerated oviscape, left; *7–8* — aculeus, ventral and lateral; *9* — same, spermatheca; *10* — non-type ♂, macerated epandrium and hypandrium, right; *11, 12* — phallus glans, lateral and ventral); *13* — *T. longa* (Shi), holotype ♀, China, IZAS, habitus left (photo L.-h. Wang, modified); *14, 15* — *T.* sp., ♀, Thailand, ZSSM (*14* — habitus left, *15* — head, anterolateral view). *fo* — femoral organ; *mvl* — medioventral lobe; *opc* — ovipositor callus; *phg* — phallic guide.

Рис. 10. *Tylotrypes*: *1–3* — *T. fuscipes* (Wulp) (*1* — голотип ♂, RMNH, общий вид слева; *2* — нетиповая ♀, Тайвань, CMNH, общий вид слева; *3* — то же, среднее бедро, спереди); *4–12* — *T. immsi* Bezzi (*4* — голотип ♀, Индия, BMNH, общий вид слева; *5* — то же, лицо, спереди; *6* — нетиповая ♀, Непал, CNC, мацерированый основной членик яйцеклада, вид слева; *7, 8* — акулеус, вид снизу и вид сбоку; *9* — то же, сперматека; *10* — нетиповой ♂, мацерированые эпандрий и гипандрий вид справа; *11–12* — гланс фаллюса, вид сбоку и вид снизу); *13* — *T. longa* (Shi), голотип ♀, Китай, IZAS, общий вид слева (фото Л.-Х. Ваня, с изменениями); *14, 15* — *T.* sp., ♀, Таиланд, ZSSM (*14* — общий вид слева, *15* — голова, вид спереди и сбоку). *fo* — феморальный орган; *mvl* — медиовентральная лопасть; *opc* — мозоль основного членика яйцеклада; *phg* — направляющая лопасть.

Shi kindly provided by Dr. Li-hua Wong (Beijing) it must be with certainty transferred from *Apyrgota* to *Tylotrypes*, which now contains seven nominal species:

Tylotrypes breviventris (Shi, 1996) (*Apyrgota*) (China: Yunnan), **comb. n.;** *Tylotrypes fura* (Shi, 1996) (*Apyrgota*) (China: Yunnan), **comb. n.;** *Tylotrypes fuscipes* (Wulp, 1885) (*Campylocera*) (Indonesia: Java), **comb. n.;** *Tylotrypes immsi* Bezzi, 1914 (India); *Tylotrypes jiangleensis* (Shi, 1994) (*Apyrgota*) (China: Fujian), **comb. n.;** *Tylotrypes longa* (Shi, 1996) (*Apyrgota*) (China: Yunnan), **comb. n.,** and *Tylotrypes hispida* (Kim & Han, 2001), **comb. n.** (*Adapsilia*) (South Korea).

These taxonomic acts are based either on the material examined (to be listed in the forthcoming publication) or on the comparison of the diagnosis of the genus with original descriptions.

Some of these species were described from males and females alone, and can belong to the same species; I do not synonymize them here as it needs study of additional material and will be subject to a taxonomic revision (Korneyev, in preparation).

This paper is partly resulting from the study supported by the Belgian Federal Office for Scientific, Technical and Cultural Affairs Research Fellowship and conducted in the Royal Museum for Central Africa, Tervuren, Belgium in 2005–2006; most type specimens were photographed there. My thanks are due to Ben Brugge (RMNH), Robert Copeland (NMKE), Allen L. Norrbom (USDA SEL, Washington, D. C., U. S. A., material from USNM), David Notton (BMNH), Thomas Pape (ZMUC), Peter Sehnal (NHMW), and Chen W. Young (CMNH), who kindly put at my disposal important material, both type and undetermined, or provided necessary data on the specimens deposited in collections under their care. Chris Raper kindly read the early proof of this paper. I thank Robert Copeland and an anonymous reviewer for their criticism and valuable comments.

References

Bezzi, M. XXI. — Indian Pyrgotinae (Diptera) // The Annals and Magazine of Natural History. Ser. 8. — 1914. — **14**. — P. 153–163.

Hendel, F. Neue Beiträge zur Kenntnis der Pyrgotinen // Archiv für Naturgeschichte. — 1914(1913). — **79 A**, N 11. — S. 77–117 + 1 Taf.

Korneyev, V. A. Genera of Palaearctic Pyrgotidae (Diptera, Acalyptrata), with nomenclatural notes and a key // Vestnik zoologii. — 2004. — **38,** N 1. — P. 19–46.

Korneyev, V. A. A revision of Afrotropical species of the Eupyrgota (Diptera, Pyrgotidae): the spinifemur group and latipennis subgroup of species // Vestnik zoologii. — 2006 a. — **40**, N 1. — P. 3–25.

Korneyev, V. A. A revision of Afrotropical species of the Eupyrgota (Diptera, Pyrgotidae): the varipennis and melancholica subgroups of species // Vestnik zoologii. — 2006 b. — **40**, N 2. — P. 115–130.

Korneyev, V. A. Revision of the genus Pyrgotomyia Hendel (Diptera: Pyrgotidae) // African Invertebrates. — 2012. — **53**, N 1. — P. 187–203.

Korneyev, V. A. Pyrgotid flies assigned to Apyrgota. I. New species and synonyms in Eupyrgota (s. str.) (Diptera, Pyrgotidae), with description of a new subgenus // Vestnik zoologii. — 2014 a. — **48**, N 2. — P. 111–128.

Korneyev, V. A. Pyrgotid flies assigned to Apyrgota. II. New species and synonyms in Eupyrgota (s. str.) (Diptera, Pyrgotidae), with description of a new subgenus // Vestnik zoologii. — 2014 b. — **48**, N 3. — P. 211–220.

Shi, Y-s. Pyrgotidae / Eds. W. Xue, C. Chao. Flies of China. —.Shenyang : Liaoning Science and Technology Press, 1996. —Vol. 1. — P. 575–595. —Chinese.

Steyskal, G. C. 42. Family Pyrgotidae // A catalogue of the Diptera of the Afrotropical Region / Ed. R. W. Crosskey. — London : British Museum (Natural History), 1980. — P. 556–562.

Vanschuytbroeck, P. Pyrgotidae (Diptera Otitoidea) // Inst. des Parcs Nat. du Congo et du Rwanda, Explor. du Parc Nat. de la Garamba, Miss. H. De Saeger. — 1963. — Fasc. 38. — P. 1–76.

Received 3 March 2014
Accepted 26 November 2014